

**What is claimed is:**

1. A polygon mirror, comprising:

a mirror body shaped in a regular polygon and having circumferential surfaces, a top surface and a bottom surface, a reflection surface formed on each of the circumferential surfaces;

a machining reference surface provided on one of the top and bottom surfaces, machined to form a mirror surface and used as a reference surface for machining the reflection surface on each of the circumferential surfaces; and

an assembling reference surface provided on one of the top and bottom surfaces, shaped in parallel to the machining reference surface, machined to form a rough surface and used as a reference surface for assembling the polygon mirror.

2. A polygon mirror of claim 1 wherein surface roughness Ra of said planished machining reference surface is determined by the formula (a), wherein said Ra is an arithmetic mean roughness specified in the JIS B0601 or ISO 468-1982.

$$0.16\mu\text{m} \leq \text{Ra} \leq 21.8 \mu\text{m} \quad (\text{a})$$

3. A polygon mirror of claim 1 wherein surface roughness Ra of said planished machining reference surface is

determined by the formula (b), wherein said Ra is an arithmetic mean roughness specified in the JIS B0601 or ISO 468-1982.

$$0.2\mu\text{m} \leq \text{Ra} \leq 20 \mu\text{m} \quad (b)$$

4. A polygon mirror any one of claim 1-3, wherein at least a groove is provided in circular form along either inside or outside edge of said roughed assembling reference surface.

5. A deflecting apparatus comprising:

a base member

a polygon mirror having reflection surfaces formed in regular polygon on each circumferential surface thereof; and

a flange member holding said polygon mirror, being rotatably mounted against said base member;

wherein said polygon mirror has

a planished machining reference surface used when machining said reflection surfaces as a reference surface for machining, and

a roughed assembling reference surface used for assembling said polygon mirror as a reference surface for assembly, parallel with said planished machining reference surface for processing reference;

wherein said roughed assembling reference surface is butted and bonded onto said flange member.

6. A deflecting apparatus of claim 5, wherein said surface roughness Ra of said planished machining reference surface is determined by the formula (c), wherein said Ra is an arithmetic mean roughness specified in the JIS B0601 or ISO 468-1982.

$$0.16\mu\text{m} \leq \text{Ra} \leq 21.8 \mu\text{m}$$

7. A deflecting apparatus of claim 5, wherein said surface roughness Ra of said planished machining reference surface is determined by the formula (d), wherein said Ra is an arithmetic mean roughness specified in the JIS B0601 or ISO 468-1982.

$$0.2 \mu\text{m} \leq \text{Ra} \leq 20 \mu\text{m}$$

8. A polygon mirror any one of claim 5-7, wherein at least a groove is provided in circular form along either inside or outside edge of said roughed assembling reference surface.

9. An image forming apparatus equipped with an optical deflecting apparatus of any one of claim 5-8.

10. A method for producing a polygon mirror comprising the steps of:

means for fixing a first end surface of roughly processed polygon mirror material shaped in polygon, onto a processing machine;

means for forming a machining reference surface by planishing a second end surface located in back side of said first end surface;

means for forming an assembling reference surface for assembly of polygon mirror by roughly finishing a surface different from said second end surface in parallel with said machining reference surface and being dented in the direction of the rotation axis said polygon mirror;

means for planishing said first end surface so that said first end surface is parallel with said machining reference surface by fixing said machining reference surface onto machine; and

means for planishing each circumferential surface of said reflection surface by stacking a plural of material processed in said steps above, along rotational axis direction of said polygon mirror.

11. A method for making a polygon mirror of claim 10 wherein surface roughness Ra of said planished machining reference surface is determined by the formula (e), wherein said Ra is an arithmetic mean roughness specified in the JIS B0601 or ISO 468-1982.

$$0.16\mu\text{m} \leq \text{Ra} \leq 21.8 \mu\text{m} \quad (e)$$

12. A method for making a polygon mirror of claim 10 wherein surface roughness Ra of said planished machining reference surface is determined by the formula (f), wherein said Ra is an arithmetic mean roughness specified in the JIS B0601 or ISO 468-1982.

$$0.2\mu\text{m} \leq \text{Ra} \leq 20 \mu\text{m} \quad (f)$$

13. A method of producing a polygon mirror of any one of claim 10-12, wherein at least a groove is provided in circular form along either inside or outside edge of said roughed assembling reference surface.